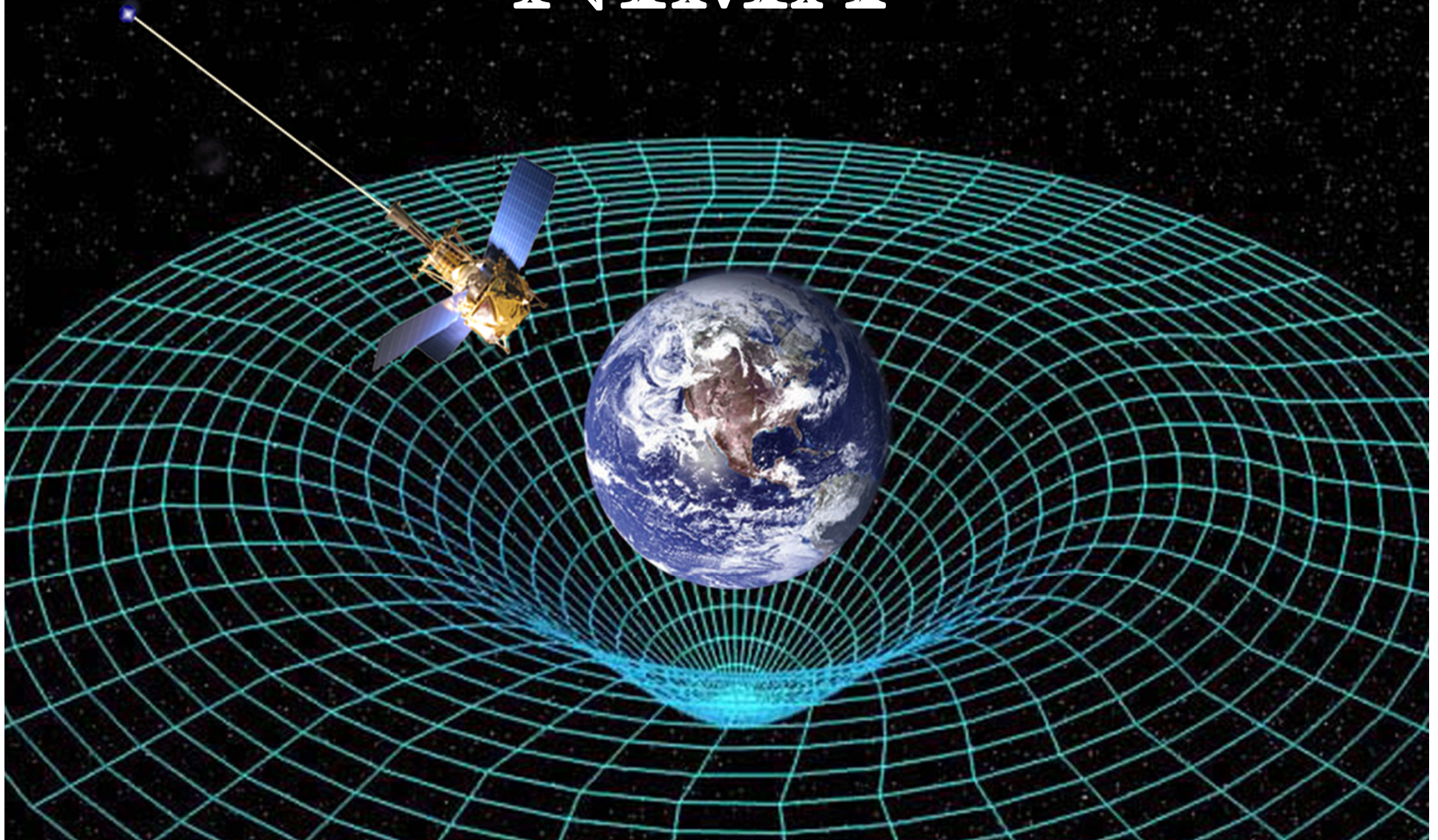


NASA INTEGRATED MODEL-CENTRIC ARCHITECTURE



NIMA

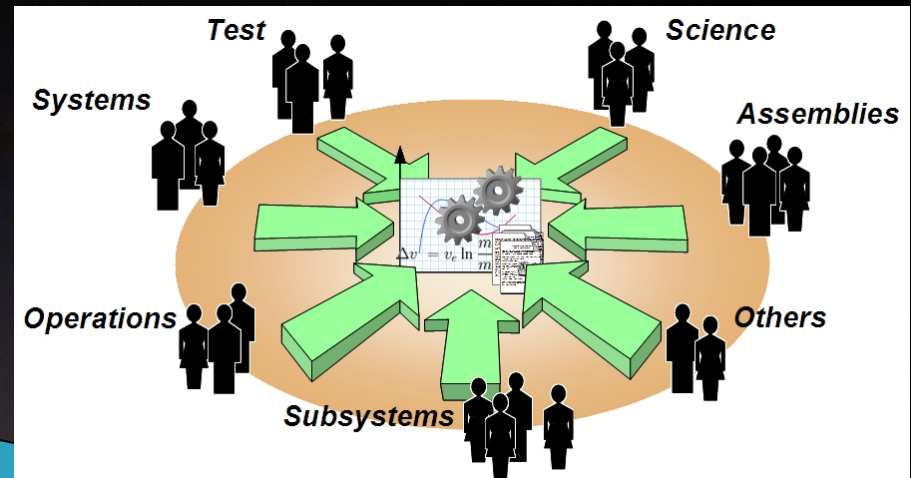




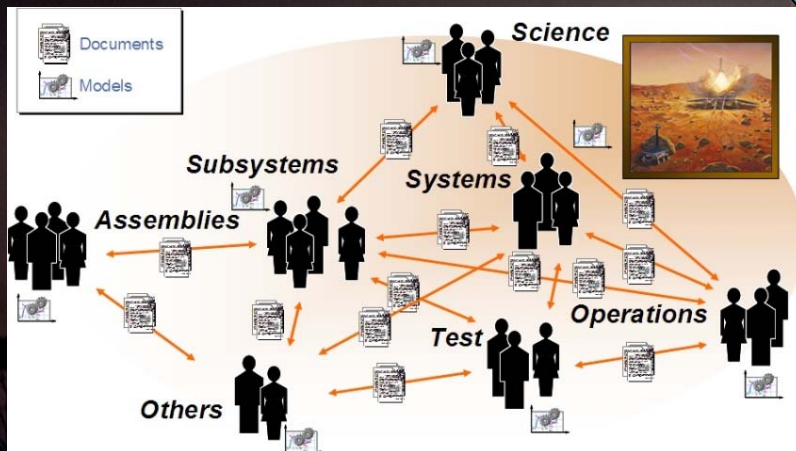
# Document-centric to a Data/Model-centric Architecture



Advance from our current document-centric engineering practice to one in which model-based data representing the technical designs, as well as Program Management & Systems Engineering information, are integrated and evolve throughout the life-cycle, supporting trade studies, design verification and system V&V



Future: Model-based data exchange among disciplines, domains, and partners

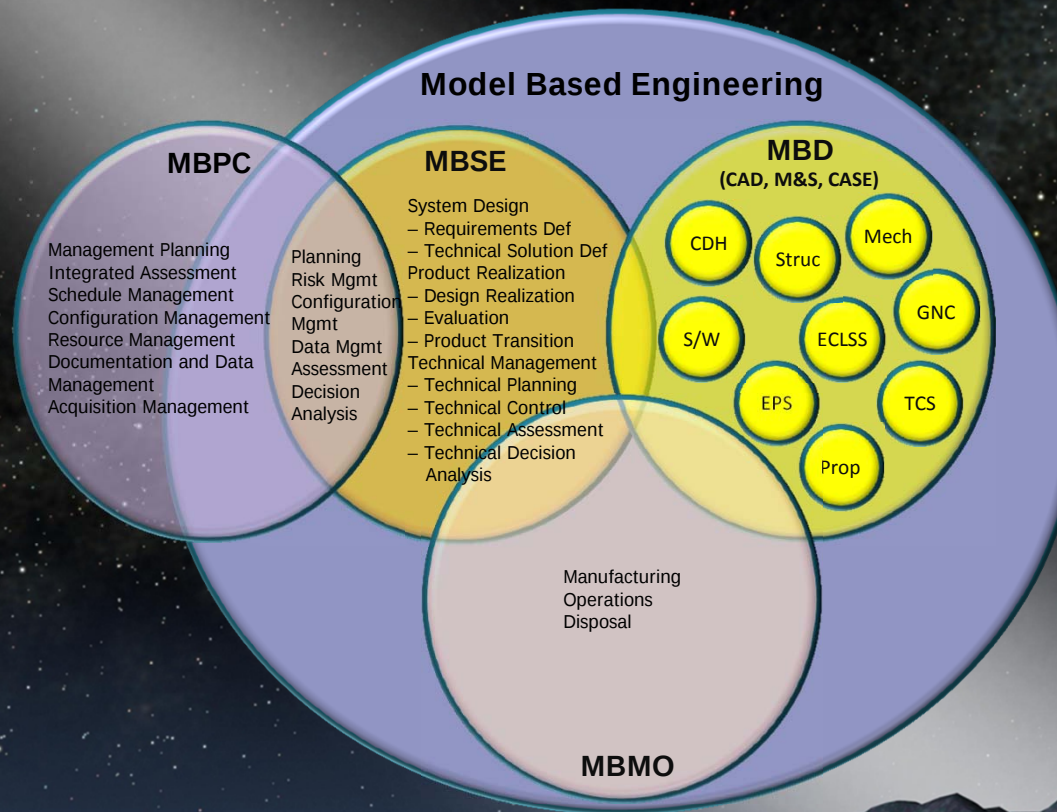


Today: Document driven & standalone models

To do this we must:

- Enhance the ability to share and exchange information
- Improve workforce knowledge, skills and abilities
- Facilitate the exchange and adoption of model-based practices and technical solutions





**MBSE (Model Based Systems Engineering)** – A formalized application of modeling to support system requirements, design, analysis, *technical management*, verification and validation activities beginning in the conceptual design phase and continuing throughout development and later life cycle phases. (17 SE Processes 7123)

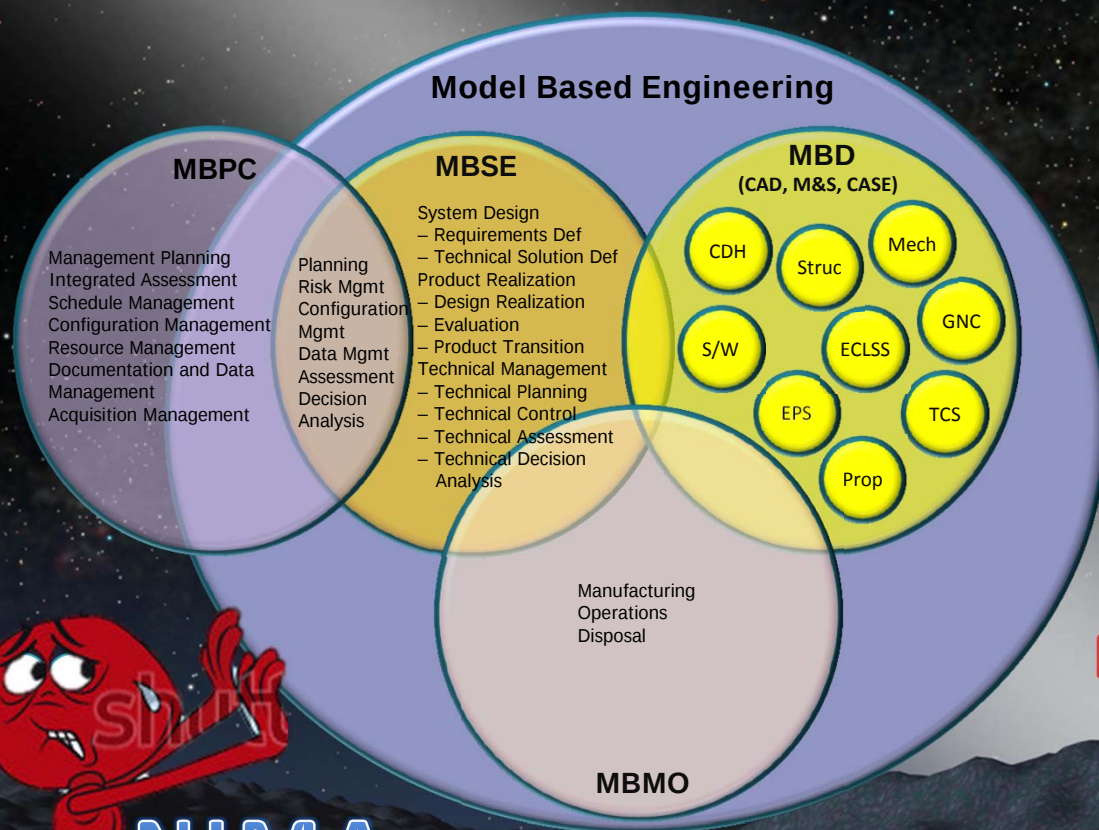
**MBE (Model Based Engineering)** – An approach to engineering that uses models as an integral part of the technical baseline that includes requirements, analysis, design, implementation, and verification of a capability, system and/or product throughout the acquisition life cycle. (NDIA M&S)

**MBD (Model Based Design)** – Mathematical and visual method of addressing problems associated with designing complex control signal processing and communication systems

**MBPC (Model Based Project Control)** - A formalized application of modeling to support schedule, budget, organizational activities related to the system(s) of interest.

**MBMO – Model Based Manufacturing and Operations** – A formalized application of modeling to support manufacturing and operations





Model-Centric

NIMA

Document-Centric







# NIMA Approach

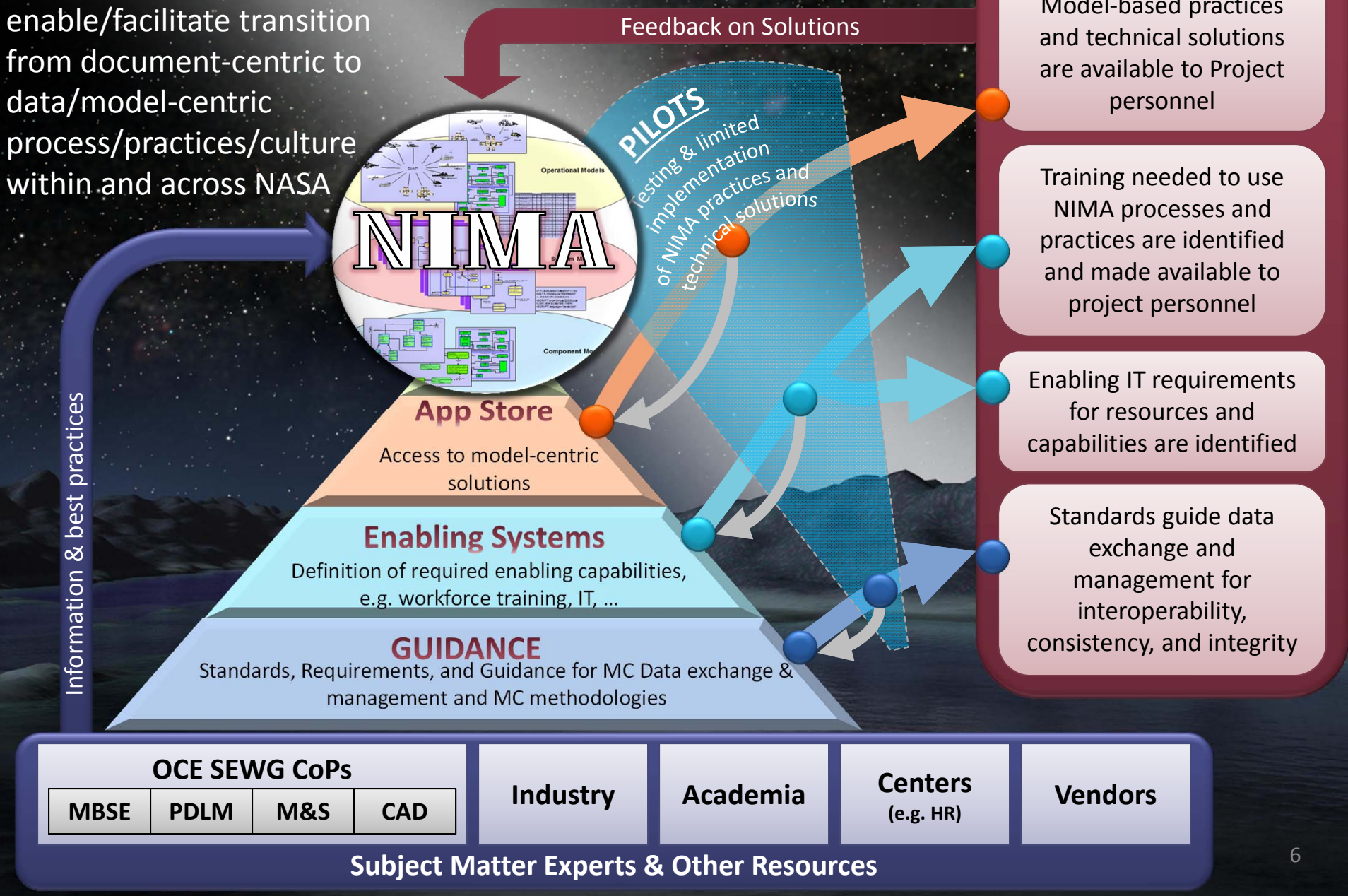


Develop, implement, and exercise a technologies & methodologies infusion pathway to help move the Agency from a Document-centric to a Data/Model-centric Capability and Culture



# NIMA-to-Project View

A cross-center team working to enable/facilitate transition from document-centric to data/model-centric process/practices/culture within and across NASA





# FY14 NIMA Infrastructure Development



- Define processes to ID, Filter, Prioritize, and Select candidates for AppStore, Standards, Handbooks, & Training
- Define and develop AppStore functionality
- Define processes to capture/develop content for AppStore, Standards, Handbooks, & Training



# Initial FY 2014 Focus Areas for AppStore and Standards/Handbooks Content:



- Refinement and utilization of a SE Process Model (based on NPR 7123.1)
- Development of an Agency Handbook for Modeling & Simulation Verification, Validation, & Accreditation (M&S VV&A)
- Assessment of DARPA Adaptive Vehicle Make (AVM)
- Two study efforts, consisting of research, benchmarking, and development of follow-on recommendations:
  - CM/DM of models/databases
  - Contractual language for the exchange of models and electronic data